



Effect of capital structure on profitability: Evidences from Portugal and Spain

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Biographical introduction

I, Deepika Kumari was born in Jalandhar, Punjab, India in 1990. I have completed my graduation in Commerce from Delhi University in 2013. After that I have joined masters in Finance at faculty of Economics, U.Porto in 2013. I am from an army background, my father has served in Indian Army for more than 30 years and because of his profession I had the privilege to spend my childhood in different cities and hence my schooling was done in multiple schools. Hence, I also had the privilege to come across people from various ethnicity and cultural background as a result I had the opportunity to harness my social skills. I can easily mix with different people and cope up with new environments and have always outstood in performance. Also, I was able to achieve distinctions consistently in all the different schools I have been in. Since the beginning of my education I had inculcated leadership qualities, as I had been the class monitor and school prefect. My natural ability to lead and manage immensely impressed my faculties at university and school. My intellectual thinking and communication skill always helped me to organize and coordinate many of the school level competitions. When introduced to commerce in high school I realized that it interestingly qualified as a subject of both Arts and Science. It is an area defined by precise rules, principles and axioms and yet there was tremendous scope for self-expression in the form of interpretation and analysis. This fact of accounting and Finance intrigued me very much and I decided to pursue further studies in this area. My interest in the subject and sincere dedication to studies helped me to achieve the position of the Overall Topper of my course at the completion of my degree. My aspiration and desire to experience quality education has rewarded me with the opportunity to get selected as an Erasmus Mundus Scholar for a Full Degree course Masters in Finance at the University of Porto in 2013, which being fully sponsored.

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Effect of capital structure on profitability

Abstract:

Capital structure is one of the most important and complex areas of financial decision making as it being interrelated with other financial decisions. A firm can opt for different capital structure and for those combinations there is a total cost of capital depending on the financial situation of the company. Hence proving to be the basic relevance for the purpose of the study. The main objective of the study is to find out the capital structure and its impact on profitability in considered firms in the Portugal and Spain and how the Eurozone crisis has affected the capital structure decisions. In this study an attempt has been made to analyze the capital structure and its impact on profit earning capacity during a period of 2003-2013.

By analyzing the correlation results, it can be inferred that there is a negative correlation between profitability ratios and leverage ratios. Whereas, the results of regression analysis shows there is either no or negative significant relationship between the ROE (Return on Equity) and leverage ratio, but there is a negative and significant impact of leverage ratios on ROA (Return on Assets). Further, the findings also supported the fact that there is no significant change in financing decisions of the firm has been seen after Eurozone Debt crisis when compared to Pre-Eurozone Debt Crisis. The outcomes of the study may guide entrepreneurs, loan- creditors and policy planners to formulate better policy decisions in respect of the mix of debt and equity capital and to exercise control over capital structure planning and thereby to control and reduce bankruptcy costs.

JEL-Classification: G32, G01

Keywords: Capital structure, Profitability, leverage, financial decision, leverage

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1. Introduction

A corporation finances its assets through some combination of equity, debt, or hybrid securities and Capital Structure defines the ways of doing it. In the corporate world, a firm's capital structure is the composition or 'structure' of its liabilities. Keeping in mind the basic objective of financial management, which is to maximize the shareholder's wealth and therefore, all financing decisions must be taken in the light of this objective. The theory of capital structure has derived its importance from the relationship between the financial leverage and the earnings available to the equity shareholders. Considering the case of favorable financial leverage, the increase in sales or more particularly the increase in earning before interest and tax (EBIT) will have a magnifying effect on the earning per share (EPS). Hence, the firm should, therefore, select such a capital structure or financial leverage that will maximize the expected EPS. The decisions regarding the capital structure or the financial leverage or the financing mix should also be based on the fulfilling the basic objective of financial management, or in achieving the maximization of shareholder's wealth.

1.1 Optimal Capital Structure

How much debt should a company use, and how does the use of debt affect firm value? Hundreds of research papers are published to investigate corporate capital structure in an attempt to answer these questions. While theoretical papers agree that there are many benefits to using debt. Which include the tax benefits of interest deductibility, oversight and monitoring by intermediaries and financial markets. Also they facilitate reduction in agency costs resulting from too plentiful free cash flows. For a firm the costs of debt include financial distress and bankruptcy costs so, there arises the possibility that it will pass up positive net present value projects if it has too much debt overhang. Apart from it, the cost of debt involves the agency costs that can result if debt creates conflicts between managerial objectives and those of bondholders and stockholders.

Practically till now no one has defined a model for optimal capital structure. Theoretically,

an optimal capital structure is that which optimizes the shareholder's wealth. Shareholder's are the real owner of any company so optimizing their wealth creates value for the firm. For some companies more debt in capital structure creates value on the other hand for some companies its vice-versa. So managers should analyze the financial conditions before taking any decisions.

1.2 Capital structures theories

In this section different theory related to capital structure is presented.

Modigliani and Miller's theory assumes a perfect market situation to hold their theory, but in reality the situation are never perfect. We find so many imperfections in the market, which cause its relevance. Below are the some imperfections, which relax the assumptions made in the M&M model:

1.2.1 Trade-off theory

This theory refers that a company chooses its capital structure by balancing the costs and benefits of the debt and equity. The classical version of this theory by Kraus and Litzenbeger (1973) suggested that there should be a balance between the dead-weight costs of bankruptcy and the tax saving benefits of the debt. Agency cost can also be also considered as a part of it. This theory also explains the fact that there is an advantage of using debt as source of financing in the form of tax benefits and there is a cost of financing capital structure with debt, this is the cost of financial distress in the form of bankruptcy cost of debt and non-bankruptcy costs (staff leaving costs, bondholder or stockholders infighting etc.). As debt increases the marginal cost of debt increases while the marginal benefits of debt declines, so the firms, which is optimizing its overall value, should consider this trade-off when choosing between debt and equity as a source of finance.

1.2.2 Pecking order theory

Donaldson first proposed this theory (1961), which was later modified by Meyers and Nicolas (1984). According to this theory a company should prioritize its source of financing first from internal financing and then moving on to equity, considering the cost of financing raising money from equity should be company's last option. Hence, Internal funds should be used first and when it's not sufficient the debt should be issued. After issuing debt if a company needs more fund and if its not a sensible to issue more debt then equity should be issued.

Managers know very well about the company prospects, its risk and value than its investors. This creates asymmetric information, affecting the choice between internal and external source of financing. This validates the existence of pecking order theory while choosing the source of financing. When a company issues debt over equity it implies, board is confident that the investment project is profitable and this will impact favorably on its share price. On the other hand issuing equity shows that the board is not confident enough for the project and it can impact negatively on the current stock price of the company. As a result investors think that mangers wants to take the advantage of the overvaluation of their shares, hence placing a lower value for the new shares. However, this theory has some exceptions, for example it doesn't apply to high tech industries where the board prefers to issue equity because of the high cost of debt.

1.2.3 Market timings

The market timing theory of capital structure argues that the firms issue new stock when the stock price is overvalued and buy back their shares in times of undervaluation. Hence, the stock prices can affect the firm's capital structures. It can also be inferred that the capital structure dynamics can be driven by two versions of equity market timings. The first version however considers the economic agents to be rational. Normally, the firms issue equity directly over positive information this reduces the asymmetry conflict between the management and stockholders. As decrease in information asymmetry coincides with an

increase in stock price the firms create their own timing opportunities. The second theory assumes economic agents to be irrational (Baker and Wurgler, (2002)). According to this theory, a time-varying mispricing of the stock of the company arises due to the irrational behavior. The presence of an irrationally low cost drives managers to issue equity and on the other hand the presence of irrationally high cost leads to repurchase of equity

1.3 Motivation For the Theme

A company's capital structure is arguably one of its most important choices. From a technical perspective, it is defined as the careful balance between equity and debt that a business uses to finance its assets, day-to-day operations, and future growth. On a practical note, it influences everything from the firm's risk profile, the ease of procuring funds and the incurred cost, the return its investors and lenders expect, and its degree of insulation from both microeconomic business decisions and macroeconomic downturns. Looking back from the past, many companies have struggled with the wrong capital structures. During cycles of credit expansion, companies have often failed to build enough liquidity to survive the inevitable contractions. Especially vulnerable are enterprises with unpredictable revenue streams that end up with too much debt during business slowdowns. It doesn't matter whether a company is big or small, capital structure always has impacted the financial decision.

All the aspects of capital investment decision directly affect the profitability of an enterprise. Hence, proper care and attention need to be given while determining the capital structure decision. In the statement of affairs of an enterprise, the overall position of the enterprise regarding all kinds of assets, liabilities are shown, where Capital is a vital part of that statement (hereafter called Balance Sheet). So, virtually, capital structure is a part of financial structure. The term 'capital structure' of an enterprise, is actually, a combination of equity shares, preferences shares and long-term debts.

Weston and Bringham (1978) define capital structure as the permanent financing of the firm represented by long-term debt plus preferred stock and net worth. Although there are different views about the total nature of 'capital structure' but, one basic relation that it is

obviously true from the fact that everybody has agreed about the common items, i.e. total of equity and long-term debt which represent the permanent source of financing of a company. Therefore, capital structure may be defined as the permanent source of capital in the form of long-term debt, preference shares, ordinary shares, reserve and surplus.

In 1958 Modigliani and Miller said that, Under perfect market setting capital structure doesn't influence in valuing the firm explaining that value of firm is measured by real assets not, the mode they are financed. But In 1963 taxes were introduced to show that the value of a firm increases with more debt due to the tax shield. But if this theory predicts 100% debt financing then why we use different combination of equity and other sources? What is the role- played by Capital Structure? These fundamental questions provoked me to understand and learn about Capital Structure better, hence the motivation for opting it as the Master's Dissertation topic.

1.4 Pertinence of the Study

Due to the absence of any practical model on optimal capital structure, study of effect of capital structure on firm's performance is useful to any kind of business community since it will throw more light on the role that capital structure has in determining. Capital structure and its influence on the firm financial performance and overall value has always been remained an issue of great attention amongst financial scholars since the decisive research of (Modigliani & Miller, 1958) arguing that under perfect market setting capital structure doesn't influence in valuing the firm.

The cost of capital determines the Company's Profit but it also affects the choice of securities. On the other hand the financial strategies adopted determine the Company's Capital. During the running period of a company, equity has higher raising costs but has lower sustaining costs however in case of debt, getting it is easy but the financial burden becomes large with time. Raising the debt in capital will lower the tax burden but it does not necessarily mean that a company can afford paying the installments incurred afterward. Hence the basic relevance of the purpose of the study arises from the fact that the cost of capital depends on the financial situation of the company. In this study the impact and

relationship in choices of capital structure on firm's performance for different economies will also be investigated. Two economies has different taxation system and different legal regulation and rules so even companies with same capital structure are most likely to perform differently as both companies are bound to operate and comply in different economic environments. The significance of the study lies in it being the first of its kind where a comparative study has been carried out in analyzing the impact of capital structure on profitability between two countries Portugal and Spain. Also it assesses the financial decisions regarding structuring the capital structure of the companies of Portugal and Spain due to the Eurozone Debt crisis.

Section 2 of this report describes the various literature reviews conducted relating to the study. Which is followed by the Data and Methodology in section 3, which describes the type and source of data. It also describes the methodology adopted in the study. Succeeding the section 4 is the results section where we have analyzed the outcome of the study. The effect of European crisis in the study has also been discussed here. Then finally section 5 contains our conclusion and recommendations regarding the study.

2. Literature Review of similar studies

In this section literature from similar study has been presented.

The perfect market theory as stated by Modigliani and Miller eventually occurred to everyone that they do not hold in the real world, this in introduction of additional rationalization for this proposition and the contradiction of it's underlying assumptions showing that capital structure affects firm's value and performance from various research works. The belief strengthened when the seminal paper of Jensen and Meckling (1976) demonstrated that the conflicts of interests between managers and shareholders are directly affected by the amount of leverage in a firm's capital. This conflict of interest can influence by constraining or encouraging managers to act more in the interest of shareholders, resulting in the alteration of manager's behaviors and operating decisions. This implies that the amount of leverage in capital structure affects firm performance (Harris and Raviv (1991); Graham and Harvey (2001); Brav et al., (2005). The study demonstrated by authors like Maksimovic and Zechner (1991); Chevalier (1995); Kovenoch and Philips (1995) and Mackey and Philips (2001) showed that the use of debt or in general the company's overall performance is also dependent and influenced by the different industry types.

In 1998, Fama and French concluded that the debt does not concede taxes benefits. The leverage degree gives rise to agency problems among shareholders and creditors that predict negative relationships between leverage and profitability. Thus, the negative information relating debt and profitability observe the tax benefit of the debt.

The study by Kinsman and Newman (1999) shows that analysis of the relationship between capital structure choice on the debt level and firm's performance is very important for many reasons. Among these reasons: first, when the mean firm debt level have rises substantially over the last periods, it requires an explanation of the impact of debt level on firm's performance, so that appropriate debt level decisions can be made in a particular firm. Second, since the prominence managers and investors may be different in a firm, the

relative strengths of any specific effects of debt on firm's performance must be known. Final, and most important, reason for studying debt level and firm's performance is to examine the association between debt level and shareholders wealth, as maximization of shareholder's wealth being the primary goal of firm's managers.

Influenced by the work of Jensen and Meckling (1976) on the possibility that capital structure's effect on firm's performance, many researchers have worked on their idea to find the relationship between capital structure and firm performance over the last decades. However, definitive empirical evidence regarding this relationship is still contradictory and mixed. Studies show results a positive relationship between leverage level and firm performance by some authors like Taub (1975); Roden and Lewellen (1995); Champion (1999); Ghosh et al., (2000); Berger and Bonaccorsi (2006) and Hadlock and James (2002) and, also a negative relationship between leverage level and firm performance by studies done by Fama and French (1998); Gleason et al., (2000) and Simerly and Li (2000).

The other major studies undertaken by Mosquita and Lara (2003); Philips and Sipahioglu (2004); Haldlock and James (2002); Arbabiyan and Safari (2009); Chakraborty (2010); Huang and Song (2006); Pandey (2004) came up with the findings which were conflicting in nature where some studies confirm positive relationship between capital structure and profitability while other studies confirm positive relationship between the variables. It is against this background that the present study has been undertaken so as to facilitate the existing literature.

Gill, et al., (2011) pursued Abor's (2005) findings regarding the effect of capital structure on profitability by examining the effect of capital structure on profitability of the American service and manufacturing firms. The empirical results of the study showed that short-term debt to total assets holds a positive relationship with profitability and also the same for total debt to total assets and profitability in the service industry.

In some countries like Egypt, Study by Ibrahim E. (2009) showed that there is a negative and significant correlation between short term debt and total debt on firm performance

whereas there is no significant relationship between long term debt and ROE and GM. So it indicates that in general there is weak to no impact of leverage on firm performance in Egypt.

Some empirical studies regarding the relationship between capital structure and firm's performance in developed countries are mixed and contradictory evidences are found, however there are a few studies, which empirically examine this relationship in emerging (transition) economies. Studies like Majumdar and Chhibber (1999) examine the relationship between capital structure and performance of Indian firms determining that debt level is negatively related with performance (i.e. return on net worth). Again Chiang et al. (2002) analyses the firms in property and construction sector in Hong Kong where he examines the relationship between capital structure and performance showing that high gearing is negativity related with performance (i.e. profit margin). Abor (2005) in his study investigated the relationship between capital structure and profitability of listed firms in Ghana where he proved that STD and TD are positively related with firm's profitability (i.e. ROE), also LTD is negatively related with firm's profitability (i.e. ROE). Study by Kyereboah-Coleman (2007) analyses the relationship between capital structure and performance of microfinance institutions based in sub-Saharan Africa where high leverage is positively related with performance (i.e. ROA and ROE). The relationship of capital structure and performance of Jordanian firms is examined by Zeitun and Tian (2007) where, they found a negatively related debt level as to performance (both the accounting and market measures). Finally, Abor (2007) examines the relationship between debt policy (capital structure) and performance of small and medium-sized enterprises in Ghana and South Africa where the capital structure, especially long-term and total debt level, is negatively related with performance (both the accounting and market measures).

The "trade-off theory" states that optimal capital structure can be determined by balancing the benefits and cost associated with debt financing. The study of Modigliani and Miller (1968) proposed that debt financing has benefits of tax shield as it allows the deduction of interest expenses from pre tax income of the firm. Hence, it may reduce the agency cost,

threatening the firm of liquidation which can cause personal losses such as reduction in salaries, loss of reputation, perquisites etc., as a result this motivates managers to work efficiently and generate enough cash flow to pay interest payment (Grossman and Hart, (1982); Williams, (1987)). High leverage can also enhance the firm's performance by mitigating conflicts between shareholders and managers concerning the free cash flow (Jensen, 1986), the optimal investment strategy (Myers, (1977)), and the amount of risk to be undertaken (Jensen and Meckling, (1976)). On the other hand, debt financing brings with it commitment for future cash outflows in terms of periodic interest and the principal borrowed so the debt costs include direct and indirect bankruptcy costs, and these commitments increase the likelihood of firm's financial default and bankruptcy. However, the presence of bankruptcy costs and their relatively small value when compared to tax savings relating to debt is shown in Miller (1977), Warner (1977). Thus, according to trade-off theory more profitable firms have higher income to shield and thus should borrow more to take tax advantages (i.e. operate with higher leverage). Consequently, a positive relationship is to be expected between debt level and firm's performance (i.e. profitability).

Another theory, the "pecking Order theory" as developed by Myers (1984) and Myers and Majluf (1984) states that because of information asymmetry between managers and investors about the firm's investment opportunities, the market may undervalue a firm's new shares relative to the value that would be assessed if managers' information about their firm's investment opportunities were revealed to the market. So, if there is any value transfer from old to new shareholders this may harm the existing shareholders. In order to prevent this, managers will prefer financing new investments by preferably from internal sources (i.e. retained earnings) but, if this source is not enough then managers seeks for external sources from debt as second and equity being least desirable. Thus, according to the pecking order theory profitable firms generate high earnings to be retained are expected to use less debt in their capital structure than those do not generate high earnings, since they are able to finance their investment opportunities with retained earnings. Consequently, a negative relationship could be expected between debt level and firm's performance (i.e. profitability). This negative relationship between debt level and firm's performance of

profitability is supported by empirical evidence from studies by Kester (1986), Friend and Lang (1988), Titman and Wessels (1988), Rajan and Zingales (1995), Wald (1999), Booth et al., (2001) and Fama and French (2002).

In 1977, Ross introduced the “Signaling theory”, where raising of new debt by a firm gives a positive signal to the capital markets about the firm’s confidence that its future cash flows would be positive and it would comfortably service its debt. As debt servicing is a firm’s contractual obligation, a high level of debt reflects the positive expectations about future cash flows of a company. On the other hand as per POT, the raising of equity by a firm rather than going for a debt issue for funding its new projects, is taken as a negative signal by the market. As managers having more and better information on the firm, sometimes may go for an issue of equity when it is overpriced harming the interest of equity investors.

Some authors like Myers, (1984) conveyed that profitable firms are less likely to borrow as their attraction towards the rewards of retaining earnings. This idea was also supported by Chittenden et. al., (1996), Michaelas et. al., (1999) and Cassar & Holmes, (2003) indicating that profitability is negatively related to total gearing. Studies by Gedajlovic et. al, (2003); Lincoln et. al, (1996) also suggest that firms with higher level of debt earn less profitability. The fact that profitability is not statistically significantly related to long-term debt is shown by Hall et. al., (2000). Again, Jordan et. al., (1998) argued and gave no support for the negative impact of debt on profitability. From the above reviews, it can be concluded that most of the studies support the general notion that with increase of profitability of a firm, the risk of solvency is decreased by lower debt level.

Overall all of the done researches in this area can be divided into three groups:

Group 1: Mayers (1977), Miller (1977), Dammon and Senbet (1988), Fernandez (2001), and Hovakimian (2001): They said that there is a significant and positive relationship between the ROE and debts. Hadlock and James (2002) by studying 500 companies between 1980 and 1993 has proposed that more profitable companies have used borrowed

financial resources more than equity in their capital structure.

Group 2: Friend and Lang (1988) have studied 948 American companies during 1979 and 1983. They said that there is a significant and negative relationship between the debt and the profitability. Fama & French (1998) also concluded that debt never leads to access to the tax advantage, on the other hand more borrowing leads to conflict of interest between managers and owners creating a negative relationship between the long-term debt ratio and profitability ratio.

Group 3: Some authors like Lara and Mosquita (2003), Abor (2005), concluded that there is a significant and positive relationship between the profitability and short term debt to assets ratio but has significantly and negative relationship between the profitability and long term debt to assets ratio.

So, studies by various authors showed different results depending on the data set, time period and approach adopted. Some authors have chosen ROE as a measure of performance whereas some authors adopted ROE and GM as measure of profitability. ROE is a not a correct measure of profitability as it is not only equity which company invests in the business but also debt. So, ROE should not be a measure of performance instead ROA should be used as it measure the return on total capital invested in any kind of business activity.

Now, in the next section we will be describing the methodology adopted in studying the effect of capital structure on profitability.

3. Data and Methodology:

In section 3.1, presented is the type of data used in the study and also the location from where it is collected; In 3.2 shows the methodology and the main models used for this study.

3.1 Data

For the study we have considered all the companies listed in Portuguese stock exchange (PSI20) and Spanish stock exchange (IBEX35). The data were obtained using the database Thomson Reuters DataStream. In order to find the relationship between capital structure and profitability we have used six regression models. In this study, we have taken Return on equity (ROE) and Return on assets (ROA) as our two dependent variables where, ROE is measured by the ratio between earning before interest and taxes (EBIT) and equity. For independent variables, we have taken the leverage ratios and have kept firm size calculated by the logarithm of sales and sales growth, the is calculated as the difference between the current sales, and previous year's sales divided by last year's sale as our control variables. Such variables are introduced in order to improve the robustness of the results.

3.2 Methodology

The methodology we have used for this study is similar to that method used by Abor (2005). There are several empirical studies that analyze the relationship between profitability and capital structure in different countries, and showed different results between those countries and even for the same country the results can present a different findings depending on the definition of leverage.

The models we have used are same as used by Abor(2005):

$$ROE_{i,t} = \beta_0 + \beta_1 SDA_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 SG_{i,t} + \epsilon_{i,t}, \quad (1)$$

$$ROE_{i,t} = \beta_0 + \beta_1 LDA_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 SG_{i,t} + \epsilon_{i,t}, \quad (2)$$

$$ROE_{i,t} = \beta_0 + \beta_1 DA_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 SG_{i,t} + \epsilon_{i,t}, \quad (3)$$

$$ROA_{i,t} = \beta_0 + \beta_1 SDA_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 SG_{i,t} + \epsilon_{i,t}, \quad (4)$$

$$ROA_{i,t} = \beta_0 + \beta_1 LDA_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 SG_{i,t} + \epsilon_{i,t}, \quad (5)$$

$$ROA_{i,t} = \beta_0 + \beta_1 DA_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 SG_{i,t} + \epsilon_{i,t}, \quad (6)$$

Where,

- $ROE_{i,t}$ is EBIT divided by equity for firm i in time t;
- $ROA_{i,t}$ is the annual earning divided by total assets for firm i in time t;
- $SDA_{i,t}$ is short-term debt divided by the total capital for firm i in time t;
- $LDA_{i,t}$ is long-term debt divided by the total capital for firm i in time t;
- $DA_{i,t}$ is the total debt divided by total capital for firm i in time t;
- $SIZE_{i,t}$ is the log of sales for firm i in time t;
- $SG_{i,t}$ is sales growth for firm i in time t; and
- $\epsilon_{i,t}$ is the error term.

In order to analyze these models we have used some statistical analysis techniques like using the Pearson's Correlation comparison, the descriptive statistics and the regression analysis for the different models.

First we have conducted the correlation analysis where, the Pearson product-moment

correlation coefficient (r) assesses the degree that quantitative variables are linearly related in a sample. Whether those variables have any linear relationship or not can be determined from the significant test for r . Also, the appropriate correlation coefficient depends on the scales of measurement of the variables being correlated. The strength of those relationships can be determined by the square of the correlation (r^2) in other words, it gives the proportion of criterion variance that is accounted for by its linear relationship with the predictor. It is also called the coefficient of determination.

The correlation table in the results has variable names in two rows one across the top and one column where they are compared on the basis of Pearson's coefficient(r), a sig. (2-tailed) value determining the level of significance based on the level of confidence and N (sample size).

Secondly, the tables obtained from the regression Analysis show the slope coefficients for the independent variables and also summarizes the statistical significance of the regression results. The regression coefficients in the tables are used to explain the relationship between profitability and capital structure of Portuguese and Spanish companies during the period under study. Positive coefficients are showing positive relationship between capital structure and negative coefficients shows negative relationship.

The relationship between the dependent (profitability ratio) and the Independent variables (Debt ratio) is determined by the value of standard error. Which, can be interpreted by the same way one interprets the value of standard deviation. The Standard Error (SE) means the degree of deviation of the actual values of variables from the values of variables that we produce using regression analysis. Hence, to achieve a higher accurate value of the variables from the regression analysis we have to get a lower value of Standard Error. In our study the degree of relationship between capital structure and profitability can be estimated using Standard Error.

4. Results

In this section, the outcomes from the analysis of the different models have been discussed. The complete analysis to determine the impact of profitability ratios on leverage ratios has been carried out in different stages, firstly a comparative study of both the countries Portugal and Spain has been analyzed followed by a study of combined data from both these countries. Finally, in order to determine the impact of the European Economic crisis on profitability the combined data set of both the countries has been divided into two different time scales ranging from 2003-2008 and 2009-2013 (Section 4.3). The method of the analysis has been same for the three scenarios where, a descriptive statistics study followed by a correlation analysis and a regression analysis between the profitability and leverage ratios.

4.1 Comparative Study of Portugal and Spain

This section contains the preliminary analysis and regression analysis of the results obtained using the models. The data from the Portuguese companies and Spanish companies are used to present a comparative study of the firms of these countries.

4.1.1. Preliminary Analysis of the comparative study

The preliminary analysis of the different models contains the outcomes from the descriptive statistics tables and the correlation tables. As stated earlier, using data from the Portuguese and Spanish companies separately has carried out this analysis.

Table 1 : Descriptive Statistics Study for data of the Portuguese companies

The descriptive statistics table for the Portuguese companies shows that amongst the profitability ratios ROE shows the highest standard deviation of 26.4166 with a minimum and maximum of -102.58 and 198.65 respectively. On the other hand DA shows the highest standard deviation of 26.1158 within the leverage ratios. LDA has a standard deviation of 18.2197 with mean and median of 50.6502 and 53.3700 while its minimum and maximum being at 1.18 and 88.01 respectively. The control variables Size and Sales growth has a standard deviation of 0.5204 and 18.9477 respectively. Their mean and median are at 6.2929 , 9.5149 and 6.1900 , 6.3600 respectively. And their minimum are at 5.3600 , -37.6100 respectively. Also, their maximum lies at 7.3000 and 107.6200 respectively.

	Mean	Std Dev	Minimum	Median	Maximum
ROE	15.1216	26.4166	-102.5800	14.0900	198.6500
ROA	4.4948	4.3534	-5.0500	4.0800	41.5600
LDA	50.6502	18.2197	1.1800	53.3700	88.0100
SDA	22.4395	18.5428	0.0000	17.0500	80.0700
DA	73.0897	26.1158	2.5100	73.3600	100.0000
SIZE	6.2929	0.5204	5.3600	6.1900	7.3000
SG	9.5149	18.9477	-37.6100	6.3600	107.6200

Table 2: Descriptive Statistics Study for data of the Spanish Companies

The descriptive statistic table below shows that ROE has a very high standard deviation of 49.0953 with minimum and maximum of -599.54 and 426.89 respectively. But, ROA comparatively has a low standard deviation of 6.4419. The leverage ratios shows high standard deviations of 22.577, 20.125 and 29.459 for LDA , SDA and DA respectively. The control variables Size and Sales growth has a standard deviation of 0.5992 and 26.3956 respectively. Their mean and median are at 6.7877 , 13.4280 and 6.7869 , 9.2100 respectively. And their minimum are at 5.3114 , -45.1000 respectively. Also, their maximum lies at 7.9295 and 300.1300 respectively.

	Mean	Std Dev	Minimum	Median	Maximum
ROE	15.4825	49.0953	-599.5400	17.5500	426.8900
ROA	4.9844	6.4419	-28.1300	4.7800	41.8700
LDA	46.2020	22.5770	0.0100	48.4339	96.0000
SDA	20.6668	20.1250	0.0000	12.2062	93.7900
DA	66.4501	29.4599	0.0159	72.1110	100.0000
SIZE	6.7877	0.5992	5.3114	6.7869	7.9295
SG	13.4280	26.3956	-45.1000	9.2100	300.1300

Comparing the descriptive tables for companies in Portugal and Spain, the dependent variables ROE & ROA show a similar results. Both means being relatively close to one another. For ROE the means are 15.1216 and 15.4825 for Portugal and Spain respectively, also ROA has means of 4.4948 and 4.9844 for both countries respectively. In other words we can infer that profitability ratios are very close to one another in both the countries. However, the leverage ratios SDA, LDA and DA show some variations of about 8 – 9% between Portugal and Spain. For both the countries, it can be assumed that the usage of Long-Term debt in financing the capital structure dominates the usage of Short-Term debt. Also, a higher value of debt is utilized to finance the capital structure in the companies for both Portugal and Spain. The profitability ratios in case of the Portuguese companies have less variance when compared to the Spanish companies. This can be inferred from the fact that Spanish firms reported very low minimum values of ROE & ROA also, at the same time reported much higher maximum values of ROE & ROA from their Portuguese

Counterparts. Likely, the leverage ratios in Spain show higher Standard deviation than those in Portugal.

Tables below shows the comparative results of correlations between the Profitability measured by ROE and ROA and the independent variables in this case the leverage ratio.

Table 3: Correlation study between profitability ratios and leverage ratios for Portugal

The correlation table below shows that for Portuguese companies only the short term debt to total capital ratio is negatively and significantly correlated to return on equity. However all the leverage ratios are negatively and significantly correlated to return on assets.

		ROE	ROA	LDA	SDA	DA
ROE	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	173				
ROA	Pearson Correlation	.782**	1			
	Sig. (2-tailed)	.000				
	N	173	173			
LDA	Pearson Correlation	.083	-.154*	1		
	Sig. (2-tailed)	.278	.043			
	N	173	173	173		
SDA	Pearson Correlation	-.218**	-.316**	.009	1	
	Sig. (2-tailed)	.004	.000	.904		
	N	173	173	173	173	
DA	Pearson Correlation	-.097	-.332**	.704**	.716**	1
	Sig. (2-tailed)	.203	.000	.000	.000	
	N	173	173	173	173	173

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 4: Correlation study between profitability ratios and leverage ratios for Spain

Analyzing the correlation table for the Spanish companies below, all the leverage ratios are negatively correlated to return on equity but only the short-term debt to total capital ratio is significantly correlated. On considering return on assets, the results show that all the leverage ratios are negatively and significantly correlated to it.

		ROE	ROA	LDA	SDA	DA
ROE	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	331				
ROA	Pearson Correlation	.570**	1			
	Sig. (2-tailed)	.000				
	N	331	331			
LDA	Pearson Correlation	-.091	-.259**	1		
	Sig. (2-tailed)	.099	.000			
	N	328	328	328		
SDA	Pearson Correlation	-.031	-.240**	-.085	1	
	Sig. (2-tailed)	.576	.000	.126		
	N	331	331	328	331	
DA	Pearson Correlation	-.090	-.359**	.721**	.631**	1
	Sig. (2-tailed)	.104	.000	.000	.000	
	N	331	331	328	331	331

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Summing up the results from the correlation tables for both the countries, we can infer that for Portuguese companies short term debt to total capital ratio is negatively correlated to return on equity on the other hand for both the countries, correlations between return on assets and leverage ratios are negative. This indicates that for both the countries debt has negative effect on profitability. This correlation also suggests that in order to increase the firm's performance companies should include more equity in their capital structure as including more and more debt in capital structure can only cause negative firm's performance instead of tax saving as showed by Modigliani and Miller (1968).

4.1.2 Regression Analysis of the comparative study

The following section describes the results obtained by the regression analysis on the models using data from the Portuguese and Spanish firms separately.

Table 5: Comparison of the Regression analysis models for Portuguese Companies with ROE as dependent variable

All the three regression models adopted for the study seems to be good fit for the data due to their prob(F) values of 0.000 , 0.003 and 0.002 respectively. By keeping ROE as a dependent variable, the effect of SDA on profitability is a significant and negative one. The negative relationship arises by the presence of a negative coefficient of -0.270 and significant because of the p value – 0.008 is much less than 5% level of significance. But, there are no significant relationships of LDA and DA on profitability. Although LDA has a positive relationship and DA has a negative relationship owing to their coefficients 0.096 and – 0.090 respectively but their p values are higher than the level of significance. It implies that adding more short-term debt in capital structure can affect ROE negatively. On the other hand there is no impact of LDA and DA on ROE. SIZE can be seen to have a positive and significant relationship with profitability. Similar result can be obtained with Sales growth (SG), it too has a significantly positive relationship with profitability.

Variables	Profitability		
	1	2	3
SIZE	8.835 (0.018)	9.833 (0.009)	9.627 (0.011)
SG	0.270 (0.008)	0.275 (0.008)	0.283 (0.007)
SDA	-0.270 (0.008)		
LDA		0.096 (0.370)	
DA			-0.090 (0.230)
R ²	0.113	0.081	0.084
SE	25.1031	25.5531	25.5045
Prob (F)	.000	.003	.002
Dependent variable: ROE			

Table 6: Regression Analysis table for Portuguese companies with ROA as dependent variable

All the three regression analysis models with ROA as dependent variable seems to have a good fit for the data owing to their prob(F) values well below the significant level. They are 0.000, 0.010 and 0.000 respectively. When the dependent variable is chosen as ROA we can see SDA has a negative coefficient of -0.070 and a p value less than 5% significance level, LDA and DA has negative coefficients of -0.040 and -0.054 respectively and both their p-values lower than the significant. Hence, SDA, LDA and DA have negative and significant relationships with profitability. Or, in other words by keeping ROA as the dependent variable the leverage ratios has significantly negative relationship with profitability. Hence, from our findings we can say that the leverage ratio we have used for our study affects ROA negatively implying that adding debt of any type can cause ROA to decrease. SIZE on the other hand holds a significantly positive relationship with profitability in the models 2 & 3 by considering a 10% significance level. However, Sales Growth (SG) holds a significantly positive relationship with profitability in all the three models.

Variables	Profitability		
	1	2	3
SIZE	0.919 (0.131)	1.226 (0.051)	1.024 (0.088)
SG	0.028 (0.093)	0.033 (0.055)	0.032 (0.053)
SDA	-0.070 (0.000)		
LDA		-0.040 (0.027)	
DA			-0.054 (0.000)
R ²	0.125	0.065	0.143
SE	4.1071	4.2475	4.0650
Prob (F)	0.000	0.010	0.000
Dependent variable: ROA			

Table 7 : Comparison of the Regression Analysis models for Spanish companies with ROE as the dependent variable

The regression models 2 & 3 only seems to be a good fit for the data as they have their prob(F) values below the 5% significance level. Unlike Portugal, the leverage ratios hold no significant relationship with profitability. This is because although SDA, LDA and DA holds a negative relationship with profitability due to coefficients of -0.077, -0.197 & -0.152 respectively but, all three of their p-values are more than the significant level. But, however many authors considers 10% significance level for their study , accordingly only DA will have a significantly negative relationship with profitability. SIZE and Sales Growth(SG) holds only a positive relationship with profitability in all the three models.

Variables	Profitability		
	1	2	3
SIZE	5.360 (0.237)	4.861 (0.287)	5.502 (.222)
SG	0.160 (0.120)	0.167 (0.105)	0.160 (0.117)
SDA	-0.077 (0.569)		
LDA		-0.197 (0.102)	
DA			-0.152 (0.097)
R ²	0.012	0.020	0.020
SE	49.012	49.042	48.829
Prob (F)	0.250	0.093	0.088
Dependent variable: ROE			

Table 8: Comparison of the Regression Analysis models for Spanish companies with ROA as the dependent variable

Unlike the regression models with ROE as the dependent variables, all the three models used here with ROA as the dependent variable holds good fit for the data. By choosing ROA as the dependent variable has produced results somewhat similar like the companies in Portugal, all SDA, LDA and DA holds a negative significant relationship with profitability. The negative relationship holds as all three of them has negative coefficients and the significance is due to the p-values less than the significance level of 5%. So just like in the Portuguese companies, the leverage ratios hold a significantly negative relationship with the profitability. Considering the variable SIZE it holds a significantly positive relationship with profitability in models 1 & 3 only. Sales Growth on the other hand holds a significantly positive relationship with profitability with a 5% significance level in all the three models.

Variables	Profitability		
	1	2	3
SIZE	1.222 (0.033)	0.840 (0.144)	1.171 (0.032)
SG	0.034 (0.009)	0.039 (0.003)	0.036 (0.004)
SDA	-0.089 (0.000)		
LDA		-0.074 (0.000)	
DA			-0.079 (0.000)
R ²	0.089	0.098	0.162
SE	6.175	6.169	5.925
Prob (F)	0.000	0.000	0.000
Dependent variable: ROA			

From the comparative study between Portugal and Spain it can be seen that, taking ROE as the dependent variable the regression models for the Portuguese firms hold a good fit as their Prob(F) values are less than level of significance. But, for the regression models for the analysis of Spanish firms do not hold a good fit as their Prob(F) values are higher than significant level(0.05). This disparity is eliminated when ROA was taken as the dependent variable. Both the regression models used for analysis of Portuguese firms and Spanish firms hold good fit as all the Prob(F) for both the studies are below 0.05 level.

So far we have analyzed the financial data of the Portuguese and Spanish firms separately

and compared them with each other. The next step was to prepare a database by incorporating all the companies of both Portugal and Spain together to analyze the impact of the capital structure on profitability. The following section represents the comparative study of the same.

4.2 Combined study using data from the Portuguese and Spanish Companies

The following section describes the results obtained from the preliminary analysis and regression analysis by using combined data from Portuguese and Spanish firms.

4.2.1 Preliminary Analysis of the combined study

The preliminary analysis of the different models contains the outcomes from the descriptive statistics tables and the correlation tables. As stated earlier, this analysis has been carried out by using combined data from the Portuguese and Spanish companies.

Table 9: Descriptive statistics table for combined data from Portuguese and Spanish firms

The descriptive statistics table for the financial data of all the companies of Portugal and Spain contains the mean, standard deviation, minimum, median and maximum values of the profitability and leverage ratios. Amongst the profitability ratios ROE and ROA shows a mean of 15.68 and 5.02; the standard deviation of ROE is quite large a value of 42.7 which implies a wider variation of ROE (guessing from the minimum value of -599.54 and a maximum of 426.8) as compared to ROA, which has a low standard deviation of 6.2. However, the median of ROE has increased 0.77 more than mean and the median of ROA has decreased 0.35 than the mean. On the other hand, the leverage ratios like LDA, SDA and DA have means 47.7, 21.1 & 68.2 respectively. The standard deviations of SDA and LDA are near to each other having values of 19.6 and 21.3. The control variables Size and Sales growth has a standard deviation of 0.6200 and 24.1559 respectively. Their mean and median are at 6.6104 , 12.1975 and 6.6178 , 7.9800 respectively. And their minimum are at 5.3114 , -45.1000 respectively. Also, their maximum lies at 7.9295 and 300.1300 respectively.

	Mean	Std Dev	Minimum	Median	Maximum
ROE	15.6824	42.6972	-599.5400	16.4500	426.8900
ROA	5.0298	6.2068	-28.1300	4.6700	41.8700
LDA	47.7474	21.3024	0.0100	50.5100	96.0000
SDA	21.1158	19.6477	0.0000	13.7016	93.7900
DA	68.2013	29.0611	0.0159	72.2286	100.0000
SIZE	6.6104	0.6200	5.3114	6.6178	7.9295
SG	12.1975	24.1559	-45.1000	7.9800	300.1300

Table 10: Correlation study between profitability ratios and leverage ratios for Portugal and Spain

From the correlation table below, it can be seen that the first profitability ratio- ROE has a significantly negative correlation with DA owing to the presence of a negative Pearson's correlation coefficient and a p-value less than the level of significance. However, there are negative correlations of ROE with LDA and SDA but they are not significant as both their p-values are more than the significance level of 0.05. But, the second profitability ratio ROA has all negative and significant correlations with all three of the leverage ratios. This is due to the three negative Pearson's correlation coefficients of LDA, SDA and DA and all their p-values less than significance levels of 0.05. However their relationships are not strong as their r^2 is not close to 1 but also not very weak as their values are more than 0.

		ROE	ROA	LDA	SDA	DA
ROE	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	505				
ROA	Pearson Correlation	.584**	1			
	Sig. (2-tailed)	.000				
	N	505	505			
LDA	Pearson Correlation	-.059	-.239**	1		
	Sig. (2-tailed)	.192	.000			
	N	498	498	498		
SDA	Pearson Correlation	-.073	-.272**	-.056	1	
	Sig. (2-tailed)	.099	.000	.211		
	N	505	505	498	505	
DA	Pearson Correlation	-.100*	-.393**	.717**	.658**	1
	Sig. (2-tailed)	.024	.000	.000	.000	
	N	505	505	498	505	505

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The next step is to analyze the financial data by comparing the regression analysis models, where the significance of the relationships between the leverage ratios (independent variables) with profitability are determined while keeping one of the profitability ratio as the dependent variable.

4.2.2 Regression analysis of the combined study

The following section describes the results obtained by the regression analysis on the models using the combined data from the Portuguese and Spanish firms. The analysis has been grouped into two different tables based on the different dependent variables considered during the study.

Table 11: Comparison of the Regression Analysis models of the combined data from the Portuguese and Spanish firms with ROE as the dependent variable

The three regression models used in the analysis seems to hold good fit for the data with a 5% significance level. The comparison of these regression models shows us that there is only a significantly negative relationship between DA and profitability due to a presence of negative coefficient of -0.144 and a p-value of 0.027 less than 0.05 significance level. The other leverage ratios LDA and SDA only hold a negative relationship with profitability. The p-values for both the variables are higher than that of the significance level. Also, the Prob(F) values of the 3 regression models hold a good fit with the data. SIZE can be significantly and positively correlated to profitability only if we consider a 10% significance level in place of the 5% significance level considered. Sales Growth (SG) on the other hand is both significantly and positively related to profitability by considering a 5% significant level.

Variables	Profitability		
	1	2	3
SIZE	5.218 (0.087)	5.317 (0.087)	5.079 (0.095)
SG	0.177 (0.024)	0.183 (0.020)	0.181 (0.021)
SDA	-0.151 (0.118)		
LDA		-0.113 (0.208)	
DA			-0.144 (0.027)
R ²	0.021	0.020	0.026
SE	42.3665	42.5794	42.2626
Prob (F)	0.013	0.018	0.004
Dependent variable: ROE			

Table 12: Comparison of the Regression Analysis models of the combined data from Portuguese and Spanish firms with ROA as the dependent variable

All three regression models are very good fit to the data owing to their prob(F) values of 0.000 which is way less with 5% level of confidence assumed. But, unlike the previous comparison table of leverage ratios and profitability, the regression models here are selected with ROA as the dependent variable. It can be inferred that the leverage ratios in this comparison hold a significantly negative relationship with profitability. All the three variables SDA, LDA and DA have negative coefficients of -0.084, -0.065 & -0.083 respectively and all the p-values at perfect 0.000. Also when compared to the previous comparison with ROE as the dependent variable, all the R² values are higher than the previous tables. Meaning the dependent variable is much better explained by the independent variables, or in other words the relationships are much stronger. Both SIZE and Sales Growth (SG) are significantly and positively related to profitability in all the three models with 5% level of confidence.

Variables	Profitability		
	1	2	3
SIZE	0.765 (0.073)	0.874 (0.032)	0.688 (0.090)
SG	0.034 (0.002)	0.037 (0.000)	0.036 (0.001)
SDA	-0.084 (0.000)		
LDA		-0.065 (0.000)	
DA			-0.083 (0.000)
R ²	0.097	0.089	0.178
SE	5.9153	5.5786	5.6429
Prob (F)	0.000	0.000	0.000
Dependent variable: ROA			

Considering the overall preliminary analysis we can say that for both the countries, there is a negative to no correlation between the leverage ratio and the profitability ratios. Also, analyzing the regression results we can conclude that relationship between ROE and SDA in Portugal is significant and negative whereas in Spain there is no significant relationship between ROE and leverage ratios. On the other hand when analyzed for both the countries there is no significant relationship between leverage ratios and ROA.

When we studied the combined results, we found that there is no to negative correlation between ROE and negative correlation between ROA and leverage ratios. The regression results show that there is negative and significant relationship between ROE and LDA, also there is negative and significant relationship between ROA and leverage ratios.

4.3 European Crisis and its effect

The European debt crisis (often also referred to as the Eurozone crisis or the European sovereign debt crisis) is a multi-year debt crisis that has taken place in several Eurozone member states since the end of 2009. These member states had huge government debts and could not bailout the over indebted private banks. The debt amount was so huge that they needed the support of any external agencies like the IMF, ECB etc. One of the major reasons for the huge deficit is, the cheap rates for borrowing money in Ireland led to the property bubble. All this increased flow of borrowed money has been possible due to the lowering of the interest rates on the borrowed currency. But, the different government fiscal policies were not optimized to collect enough revenues to support the government expenditures hence the debt started to accumulate. Following up there was a strong rise in the interest rate spreads for government bonds owing to the uncertainty of future stability of Euro. International Monetary Fund, European Commission and European Central Bank finally bailed out these Eurozone states; commonly “Troika” refers these trios.

In this section we are doing a comparative study on the effect of European Crisis on the Portuguese and Spanish companies in choosing the optimal capital structure and also its effect on profitability. In order to evaluate the effect, the data is divided into two sets based on the time span ranging from 2003 to 2008 and from 2009 to 2013. Similar to the analysis pattern followed in our two other studies, we will be analyzing the relationship between the different profitability and leverage ratios. Our analysis method remains the same a preliminary analysis containing descriptive analysis and correlation analysis and finally and the regression analysis.

During the crisis people become more conscious about their investment and hence they invest more in government bonds and company debentures in order to secure them. This leads to a situation where firms are more likely to borrow funds in the form of loans or

long-term debts. According to Modigliani and Miller (1963) theory the more debt we include in capital structure the more profitable the company becomes. As a Company gets benefits because of tax shields, it is expected from this study that company's profitability ratios should increase during the crisis as companies are taking advantage of tax-shields.

4.3.1 Preliminary Analysis of the pre-crisis period and crisis period

The preliminary analysis of the different models contains the outcomes from the descriptive statistics tables and the correlation tables. The data used in this study is divided into two segments one ranging from 2003-2008 and the other from 2009-2013. This clearly differentiates the pre-crisis period from the crisis period in Portuguese and Spanish companies.

Table 13: Descriptive analysis table for pre-European Crisis Period 2003-2008

Analysis of the data from the descriptive statistics table for the Pre-European crisis period, we can see that ROE has the highest standard deviation amongst the profitability ratios having mean of 20.3264 while its minimum and maximum being -118.66 and maximum 118.61 respectively. However there being a significant different between its mean and median which are 20.3264 and 18.48. Within leverage ratios, long term debt to total capital ratio has a high standard deviation of 21.8692 with maximum and minimum of 87.1 and 0.0 respectively. Its mean and median are at 46.6378 and 48.99 respectively. The control variables Size and Sales growth has a standard deviation of 0.6218 and 27.4745 respectively. Their mean and median are at 6.5491 , 17.7315 and 6.5871 , 11.9800 respectively. And their minimum are at 5.3114 , -37.6100 respectively. Also, their maximum lies at 7.9295 and 300.1300 respectively.

	Mean	Std Dev	Minimum	Median	Maximum
ROE	20.3264	22.1374	-118.6600	18.4800	118.6100
ROA	5.8557	6.8663	-28.1300	5.4900	37.3700
LDA	46.6378	21.8692	0.0000	48.9900	87.1000
SDA	20.7527	18.8684	0.0000	14.3110	91.1925
DA	67.3905	28.2799	0.0477	72.2180	100.0000
SIZE	6.5491	0.6218	5.3114	6.5871	7.9295
SG	17.7315	27.4745	-37.6100	11.9800	300.1300

Table 14: Descriptive statistics table for European crisis period 2009-2013

The table for the crisis period shows almost a twice increase in the standard deviation of the ROE as compared to the pre- crisis period. Its standard deviation is 41.1039 with minimum of -240.99 and a maximum of 426.89 both showing a significant increase. However the standard deviation of ROA has remained at 5.4313 with minimum and maximum of -11.76 and 41.87 respectively. Within the leverage ratios, DA and LDA shows the higher standard deviations of 29.0216 and 21.5103 respectively. The control variables Size and Sales growth has a standard deviation of 0.6248 and 17.5001 respectively. Their mean and median are at 6.7039 , 6.0470 and 6.6870 , 4.7100 respectively. And their minimum are at 5.3599 , -45.1000 respectively. Also, their maximum lies at 7.9266 and 98.7100 respectively.

	Mean	Std Dev	Minimum	Median	Maximum
ROE	12.6429	41.1039	-240.9900	12.0800	426.8900
ROA	4.3452	5.4313	-11.7600	4.0400	41.8700
LDA	48.1832	21.5103	0.0000	51.6315	96.0000
SDA	21.2618	19.7675	0.0092	12.5219	84.9132
DA	69.4451	29.0126	0.0159	72.3316	100.0000
SIZE	6.7039	0.6248	5.3599	6.6870	7.9266
SG	6.0470	17.5001	-45.1000	4.7100	98.7100

Comparing the descriptive statistics tables for the pre-crisis and crisis periods there has been a significant change in the values of ROE for the companies. The mean value of ROE has drastically reduced to 12.64 in post-crisis period from 20.32 in the pre-crisis period. The standard deviation value or variance has increased to almost a double value from 22.13 in the crisis period. This shows that there has been an occurrence of wider values of ROE. The other profitability ration, ROA has almost remained constant with a mean reducing only by 1.5 from the pre-crisis period. However the variance of the values of ROA has remained almost same. The leverage ratios LDA, SDA and DA also remained constant as their means only varied between 2.0 to 1.0 when compare to the pre-crisis period. Their standard deviations almost remained constant between the periods with a maximum difference of 0.9 between the periods. However, the Sales Growth has seen a considerable

change from the pre-crisis and the crisis period. The lowering of the maximum value has led to the considerable decrease in the mean and median values as compared to their pre crisis period counterparts.

Table 15: Correlation study between profitability ratios and leverage ratios for the pre-European economic crisis period

Summarizing the table below, the long term debt to total capital and the total debt to total capital ratios are negatively and significantly correlated to the return on equity. However , on the other hand all the leverage ratios are negatively and significantly correlated to return on assets ratio.

		ROE	ROA	LDA	SDA	DA
ROE	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	257				
ROA	Pearson Correlation	.747**	1			
	Sig. (2-tailed)	.000				
	N	257	257			
LDA	Pearson Correlation	-.175**	-.389**	1	-.042	
	Sig. (2-tailed)	.005	.000		.504	
	N	257	257	257	257	
SDA	Pearson Correlation	.005	-.262**	-.042	1	
	Sig. (2-tailed)	.934	.000	.504		
	N	257	257	257	257	
DA	Pearson Correlation	-.132*	-.476**	.745**	.635**	1
	Sig. (2-tailed)	.034	.000	.000	.000	
	N	257	257	257	257	257

**, Correlation is significant at the 0.01 level (2-tailed).

*, Correlation is significant at the 0.05 level (2-tailed).

Table 16: Correlation table between profitability ratio and leverage ratio for the European crisis period

The table below represents the correlation between the profitability ratios and leverage ratios for the companies in the European Economic Crisis period. It can be seen that only short-term debt to total capital ratio is negatively correlated to return on equity. Contrastingly, there seems to be negative and significant correlations between all the leverage ratios and return on assets ratio.

		ROE	ROA	LDA	SDA	DA
ROE	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	214				
ROA	Pearson Correlation	.780**	1			
	Sig. (2-tailed)	.000				
	N	214	214			
LDA	Pearson Correlation	.069	-.135*	1		
	Sig. (2-tailed)	.315	.048			
	N	214	214	214		
SDA	Pearson Correlation	-.212**	-.312**	-.014	1	
	Sig. (2-tailed)	.002	.000	.841		
	N	214	214	214	214	
DA	Pearson Correlation	-.093	-.313**	.732**	.671**	1
	Sig. (2-tailed)	.175	.000	.000	.000	
	N	214	214	214	214	214

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

On comparison of both the correlation data of pre-economic crisis period (2003-2008) with crisis period (2009-2013), one can notice a significant change in the relationship of ROE with the leverage ratios. In the pre-crisis period ROE was only significantly but negatively correlated to LDA and DA but the post-crisis period shows that there is only a significant negative relationship with SDA. ROA on the other hand shows similar significant negative correlations with LDA, SDA and DA both in the pre-crisis and crisis periods. However the comparison of the Pearson's coefficient shows that there had been a decrease in the

absolute value in case of LDA and DA and an increase in the absolute value in case of SDA as compared to the pre-crisis period. This can imply that there has been a stronger negative correlation of ROA with SDA in post-crisis period than the pre-crisis period.

Following the correlation analysis, the next step is to perform a regression analysis study for the profitability and leverage ratios. Here again there are two tables clearly distinguishing the pre-crisis period from crisis period.

4.3.2 Regression analysis comparison for the Pre-crisis and the crisis periods

The following section compares the results obtained from the regression analysis models between the pre-crisis period (2003-2008) and the crisis period (2009-2013)

Table 17: Comparison of the Regression Analysis models for the pre-European crisis period with ROE as the dependent variable

All the three regression models with ROE as the dependent variable seems to hold a good fit for the data owing to their prob(F) values being less with the 5% significant level. Comparing the three regression analysis models during the pre-crisis period, it can be observed that when ROE is taken as the dependent variable there is significant and negative relationship between profitability and LDA and DA. The values of R^2 of the models are 0.090 , 0.120 and 0.110 for the first, second and third model respectively. Both the SIZE and Sales Growth values seems to hold a significantly positive relationship with profitability with 5% significance level for all the three models.

Variables	Profitability		
	1	2	3
SIZE	8.785 (0.000)	8.718 (0.000)	8.974 (0.000)
SG	0.120 (0.015)	0.121 (0.012)	0.119 (0.014)
SDA	-0.013 (0.852)		
LDA		-0.177 (0.003)	
DA			-0.112 (0.017)
R^2	0.090	0.120	0.110
SE	21.2438	20.8857	21.0062
Prob (F)	0.000	0.000	0.000
Dependent variable: ROE			

Table 18: Comparison of the Regression Analysis model for the pre-European crisis period with ROA as the dependent variable

Similar to the regression models with ROE as the dependent variable, all the three models selected in the below table with ROA as the dependent variable hold good fit with the data selected. All of their prob(F) are less than the 5% significant level. By keeping ROA as the dependent variable all the three leverage ratios are significantly and negatively related to profitability. The values of R² in the models when ROA is taken as dependent variable are more than that of the models where ROE is taken as dependent variable, this indicated a more strong relationship between the variables for the former. SIZE can be seen to hold a significantly positive relationship with profitability with 5% significant level for all the three models. Sales Growth (SG) on the other hand holds a significant and positive relationship with profitability with a 5% significance level for models 2 & 3. However if we consider a 10% significance level Sales Growth (SG) can have a significantly positive relationship with profitability for the model 1.

Variables	Profitability		
	1	2	3
SIZE	1.549 (0.020)	1.308 (0.039)	1.563 (0.010)
SG	0.029 (0.051)	0.031 (0.031)	0.030 (0.029)
SDA	-0.099 (0.000)		
LDA		-0.122 (0.000)	
DA			-0.117 (0.000)
R ²	0.105	0.184	0.264
SE	6.5332	6.2397	5.9252
Prob (F)	0.000	0.000	0.000
Dependent variable: ROA			

Table 19: Comparison of the Regression Analysis models for European crisis period with ROE as the dependent variable

Only the regression model 1 with ROE as the dependent variable is seen to have a good fit with the data with considering both 5% and 10% significance levels. These regression analysis models where ROE is dependent variable indicates that in the post-crisis period only SDA is significantly and negatively related to the profitability. In other words, the regression model (1) expressed with dependent variable ROE, and implying a significant and negative relationship of SDA with profitability, is only a good fit with the data(due to the presence of Prob(F) less than 0.05) when compared to other regression models (2) & (3).

The variables SIZE and Sales Growth(SG) holds only a positive relationship with profitability for all the three levels while considering both 5% and 10% significance levels.

Variables	Profitability		
	1	2	3
SIZE	2.782 (0.532)	4.397 (0.334)	3.085 (0.499)
SG	0.142 (0.376)	0.186 (0.252)	0.198 (0.220)
SDA	-0.418 (0.003)		
LDA		0.132 (0.320)	
DA			-0.121 (0.216)
R ²	0.050	0.015	0.017
SE	40.3520	40.0859	41.0328
Prob (F)	0.013	0.366	0.294
Dependent variable: ROE			

Table 20: Comparison of the regression analysis models for the European Economic crisis period with ROA as the dependent variable

Unlike the previous regression models with ROE as the dependent variables, all the three models with ROA as the dependent variable hold good fit with the data with a 5% significance level considered. These models with ROA with the dependent variable tell us that all the leverage ratios are significantly and negatively related to profitability. Also, as in the pre-crisis period the analysis using models with ROA as the dependent variable also yields greater R² values for the post-crisis period; implying a stronger relationship between the variables. SIZE only holds a positive relationship with profitability for all the three models while considering both 5% and 10% significance levels. Sales Growth (SG) on the other hand hold a significantly positive relationship with profitability for the second model with 5% significance level. And, it also holds a significantly positive relationship with profitability for the third model considering a 10% significance level.

Variables	Profitability		
	1	2	3
SIZE	0.026 (0.963)	0.097 (0.870)	-0.142 (0.804)
SG	0.028 (0.170)	0.044 (0.037)	0.038 (0.059)
SDA	-0.083 (0.000)		
LDA		-0.037 (0.032)	
DA			-0.059 (0.000)
R ²	0.106	0.038	0.114
SE	5.1729	5.3638	5.1493
Prob (F)	0.000	0.041	0.000
Dependent variable: ROA			

Overall, when comparing the pre-crisis period and crisis period the regression models using ROE as a dependent variable it can be observed that the effect of the leverage ratios on the profitability has changed, in the pre-crisis period LDA and DA had significant negative relationships with profitability but the crisis had a significant and negative relationship of SDA with profitability. The regression models using ROA as the dependent variables did not show much difference from the pre-crisis period with the crisis period. Though there has been a overall decrease in the coefficient values of LDA, SDA and DA in the crisis periods implying a less stronger relationship between them and profitability. Simultaneously, the r^2 values shows a similar decrease indicating the same as above.

5. Conclusions and suggestions for further research

This study carried out in this research work is about the relationship between capital structure and Profitability of Spanish and Portuguese companies for the period of study from 2003 to 2013. Also, the impact of Eurozone crisis on company's financing policy can be established from it. However, our findings and analysis are limited to the accuracy of our data obtained from the DataStream and also the significance level of the regression model used (In this case a 5% significance level has been selected). The findings shows that there is a significant and negative correlation between the leverage ratio and Profitability ratio implying that increase of debt in capital structure has adverse effects on Profitability of Firms. However, for both the countries there is a significant and negative correlation between ROA and leverage ratios but there is a negative and significant correlation between Short-term debt and ROE in Portugal on the other hand in Spain there is no significant correlation between ROE and leverage ratio. Rest of the other variables showed a statistically no significant relationship with Profitability. The results also showed that there was not any significant change in use of debt in capital structure before and after crisis. Both Portugal and Spain uses more than 60% debt to finance their capital structure and findings also showed that both the countries uses Long-term debts more than SDA.

Regression results also support the correlation results showing that there is a negative relationship between profitability ratio and Leverage ratio. However for Spanish companies there is no significant relationship between ROE and leverage ratio. On the other hand there is a negative but significant relationship between SDA and ROE in Portugal. When studied the overall relationship between leverage ratio and Profitability ratio, we found that there is significant and negative relationship between total debt and ROE simultaneously also a significant relationship between all the leverage ratio and Profitability ratio.

On studying the impact of Eurozone crisis on our study it was found that there was not any significant difference between both the results before and after crisis but the only difference was before the crisis the impact of LDA and DA on ROE was negative and significant but

after crisis the impact of SDA was negative and significant where as the impact of other variables was negative but not significant.

From the different literature reviews on capital structure, it is found that optimal capital structure for any firm is the optimal capital debt equity ratio that maximizes the company's shareholders' wealth. It is recommended to conduct further studies on the issues of capital structure in Portugal and Spain because only those companies, which are listed in PSI20 and IBEX35 are studied in this research work. Also, a study for understanding the effect of Eurozone crisis separately on Portugal and Spain is recommended.

7. Appendices

In this section we are presenting the results we have obtained with the missing values in data.

Table1. Descriptive statistics for Portugal

Parameters	N Valid	Missing	Mean	Median	Std Deviation	Minimum	Maximum
ROE	176	22	14.94	13.83	26.24	-102.58	198.65
ROA	176	22	4.42	4.06	4.36	-5.05	41.56
LDA	181	17	50.32	52.55	18.24	1.18	88.01
SDA	181	17	22.73	17.05	18.73	0.00	80.07
DA	181	17	73.04	73.83	26.24	2.51	100.00
SIZE	181	17	6.28	6.18	0.52	5.17	7.30
Sales growth	176	22	9.23	6.16	18.93	-37.61	107.62

Table 2. Correlation between profitability ratios and Leverage ratios for Portugal

		ROE	ROA	LDA	SDA	DA
ROE	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	176				
ROA	Pearson Correlation	.782**	1			
	Sig. (2-tailed)	.000				
	N	175	176			
LDA	Pearson Correlation	0.085	-0.143	1		
	Sig. (2-tailed)	0.263	0.059			
	N	176	176	181		
SDA	Pearson Correlation	-.217**	-.321**	0.007	1	
	Sig. (2-tailed)	0.004	.000	0.926		
	N	176	176	181	181	
DA	Pearson Correlation	-0.096	-.331**	.700**	.719**	1
	Sig. (2-tailed)	0.206	.000	.000	.000	
	N	176	176	181	181	181

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 3. Regression results for Portugal with ROE as dependent variables

Variables	Profitability		
	1	2	3
SIZE	8.864 (0.017)	9.849 (0.009)	9.652 (0.010)
SG	0.271 (0.008)	0.276 (0.008)	0.283 (0.006)
SDA	-0.266 (0.011)		
LDA		0.096 (0.367)	
DA			-0.087 (0.242)
R ²	0.111	0.081	0.084
SE	24.9969	25.42002	25.3787
Prob (F)	0.000	0.002	0.002
Dependent variable: ROE			

Table 4. Regression results for Portugal with ROA as dependent variables

Variables	Profitability		
	1	2	3
SIZE	0.925 (0.127)	1.204 (0.055)	1.018 (0.090)
SG	0.029 (0.078)	0.036 (0.038)	0.034 (0.040)
SDA	-0.069 (0.000)		
LDA		-0.039 (0.032)	
DA			-0.054 (0.000)
R ²	0.127	0.065	0.144
SE	4.1037	4.2487	4.0637
Prob (F)	0.000	0.010	0.000
Dependent variable: ROA			

Table 5. Descriptive statistics for Spain

Parameters	N Valid	Missing	Mean	Median	Std Deviation	Minimum	Maximum
ROE	354	32	16.1544	17.70	47.70	-599.54	426.89
ROA	349	37	5.1923	4.78	6.85	-28.13	41.87
LDA	351	35	68.6575	76.64	24.82	0.00	100.00
SDA	344	42	31.9801	23.66	24.66	0.00	100.00
DA	351	35	65.6740	70.94	30.31	0.02	100.89
SIZE	363	23	6.7312	6.74	0.63	5.23	7.93
Sales growth	357	29	13.7035	9.63	27.35	-45.10	300.13

Table 6. Correlation between profitability ratios and Leverage ratios for Spain

		ROE	ROA	LDA	SDA	DA
ROE	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	354				
ROA	Pearson Correlation	.545**	1			
	Sig. (2-tailed)	.000				
	N	346	349			
LDA	Pearson Correlation	-0.049	-.115*	1		
	Sig. (2-tailed)	0.362	0.035			
	N	344	339	351		
SDA	Pearson Correlation	0.049	.115*	-1.000**	1	
	Sig. (2-tailed)	0.37	0.035	.000		
	N	338	339	344	344	
DA	Pearson Correlation	-0.101	-.402**	0.042	-0.072	1
	Sig. (2-tailed)	0.062	.000	0.438	0.183	
	N	344	339	351	344	351

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 7. Regression results for Spain with ROE as dependent variables

Variables	Profitability		
	1	2	3
SIZE	4.405 (0.316)	4.362 (0.316)	4.834 (0.266)
SG	0.170 (0.094)	0.165 (0.098)	0.156 (0.116)
SDA	0.111 (0.307)		
LDA		-0.110 (0.301)	
DA			-0.166 (0.055)
R ²	0.013	0.013	0.021
SE	48.6038	48.1833	47.9977
Prob (F)	0.208	0.210	0.067
Dependent variable: ROE			

Table 8. Regression results for Spain with ROE as dependent variables

Variables	Profitability		
	1	2	3
SIZE	0.393 (0.526)	0.393 (0.526)	0.683 (0.232)
SG	0.039 (0.004)	0.039 (0.004)	0.037 (0.003)
SDA	0.035 (0.022)		
LDA		-0.035 (0.022)	
DA			-0.093 (0.000)
R ²	0.005	0.038	0.186
SE	6.8232	6.8232	6.2761
Prob (F)	0.005	0.005	0.000
Dependent variable: ROA			

Table 9. Descriptive statistics for Portugal and Spain

Parameters	N Valid	Missing	Mean	Median	Std Deviation	Minimum	Maximum
ROE	529	54	15.78	16.36	41.82	-599.54	426.89
ROA	524	59	4.94	4.61	6.14	-28.13	41.87
LDA	525	58	47.81	50.28	21.50	0.01	97.29
SDA	525	58	21.26	13.70	19.70	0.00	93.79
DA	532	51	68.16	72.27	29.15	0.02	100.00
SIZE	543	40	6.58	6.59	0.63	5.17	7.93
Sales growth	533	50	12.23	7.90	24.96	-45.10	300.13

Table 10. Correlation between profitability ratios and Leverage ratios for Portugal and Spain

		ROE	ROA	LDA	SDA	DA
ROE	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	529				
ROA	Pearson	.579**	1			
	Sig. (2-tailed)	0				
	N	520	524			
LDA	Pearson Correlation	-0.059	-.228**	1		
	Sig. (2-tailed)	0.182	0			
	N	512	507	525		
SDA	Pearson Correlation	-0.072	-.272**	-0.071	1	
	Sig. (2-tailed)	0.104	0	0.109		
	N	513	514	518	525	
DA	Pearson Correlation	-.098*	-.387**	.719**	.649**	1
	Sig. (2-tailed)	0.025	0	0	0	
	N	519	514	525	525	532

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 11. Regression results for Portugal and Spain with ROE as dependent variables

Variables	Profitability		
	1	2	3
SIZE	5.000 (0.096)	5.122 (0.091)	4.864 (0.102)
SG	0.178 (0.022)	0.180 (0.019)	0.177 (0.021)
SDA	-0.144 (0.130)		
LDA		-0.114 (0.196)	
DA			-0.138 (0.029)
R ²	0.021	0.020	0.025
SE	42.0719	42.0286	41.7365
Prob (F)	0.013	0.017	0.004
Dependent variable: ROE			

Table 12. Regression results for Portugal and Spain with ROA as dependent variables

Variables	Profitability		
	1	2	3
SIZE	0.736 (0.082)	0.843 (0.037)	0.644 (0.111)
SG	0.032 (0.002)	0.038 (0.000)	0.036 (0.000)
SDA	-0.083 (0.000)		
LDA		-0.062 (0.000)	
DA			-0.082 (0.000)
R ²	0.096	0.087	0.175
SE	5.8916	5.5644	5.6289
Prob (F)	0.000	0.000	0.000
Dependent variable: ROA			

European Crisis and its effect**Table 13. Descriptive statistics for Portugal and Spain before crisis**

Parameters	N Valid	Missing	Mean	Median	Std Deviation	Minimum	Maximum
ROE	263	13	20.18	18.45	21.91	-118.66	118.61
ROA	259	17	5.87	5.49	6.84	-28.13	37.37
LDA	269	7	46.85	48.79	22.14	0.00	97.29
SDA	269	7	20.61	14.10	19.09	0.00	91.19
DA	269	7	67.45	72.31	28.50	0.05	100.00
SIZE	269	7	6.53	6.57	0.62	5.17	7.93
Sales growth	265	11	18.06	11.84	29.17	-37.61	300.13

Table 14. Correlation between profitability ratios and Leverage ratios before crisis for Portugal and Spain

		ROE	ROA	LDA	SDA	DA
ROE	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	263				
ROA	Pearson Correlation	.747**	1			
	Sig. (2-tailed)	0				
	N	257	259			
LDA	Pearson Correlation	-.171**	-.376**	1		
	Sig. (2-tailed)	0.005	0			
	N	263	259	269		
SDA	Pearson Correlation	0.007	-.263**	-0.05	1	
	Sig. (2-tailed)	0.915	0	0.416		
	N	263	259	269	269	
DA	Pearson Correlation	-.126*	-.470**	.743**	.631**	1
	Sig. (2-tailed)	0.041	0	0	0	
	N	263	259	269	269	269

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 15. Regression results of before crisis period for Portugal and Spain with ROE as dependent variables

Variables	Profitability		
	1	2	3
SIZE	8.762 (0.000)	8.716 (0.000)	8.926 (0.000)
SG	0.115 (0.016)	0.118 (0.012)	0.115 (0.015)
SDA	-0.007 (0.923)		
LDA		-0.173 (0.003)	
DA			-0.104 (0.022)
R ²	0.089	0.119	0.107
SE	21.0308	20.6863	20.8187
Prob (F)	0.000	0.000	0.000
Dependent variable: ROE			

Table 16. Regression results of before crisis period for Portugal and Spain with ROA as dependent variables

Variables	Profitability		
	1	2	3
SIZE	1.561 (0.019)	1.290 (0.042)	1.549 (0.010)
SG	0.027 (0.058)	0.033 (0.014)	0.031 (0.016)
SDA	-0.098 (0.000)		
LDA		-0.118 (0.000)	
DA			-0.116 (0.000)
R ²	0.105	0.178	0.261
SE	6.5116	6.2399	5.9163
Prob (F)	0.000	0.000	0.000
Dependent variable: ROA			

Table17. Descriptive statistics for Portugal and Spain during crisis

Parameters	N Valid	Missing	Mean	Median	Std Deviation	Minimum	Maximum
ROE	219	354	12.38	12.00	40.67	-240.99	426.89
ROA	219	354	4.25	3.92	5.41	-11.76	41.87
LDA	220	353	48.28	51.63	21.39	0.00	96.00
SDA	220	353	21.30	12.38	19.83	0.01	84.91
DA	220	353	69.57	72.82	28.85	0.02	100.00
SIZE	220	353	6.71	6.68	0.62	5.36	7.93
Sales growth	220	353	5.97	4.71	17.42	-45.10	98.71

Table 18. Correlation between profitability ratios and Leverage ratios during crisis for Portugal and Spain

		ROE	ROA	LDA	SDA	DA
ROE	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	219				
ROA	Pearson Correlation	.780**	1			
	Sig. (2-tailed)	0				
	N	218	219			
LDA	Pearson Correlation	0.067	-.134*	1		
	Sig. (2-tailed)	0.326	0.048			
	N	219	219	220		
SDA	Pearson Correlation	-.207**	-.304**	-0.021	1	
	Sig. (2-tailed)	0.002	0	0.751		
	N	219	219	220	220	
DA	Pearson Correlation	-0.092	-.309**	.727**	.671**	1
	Sig. (2-tailed)	0.177	0	0	0	
	N	219	219	220	220	220

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 19. Regression results of during crisis for Portugal and Spain with ROE as dependent variables

Variables	Profitability		
	1	2	3
SIZE	2.760 (0.527)	4.207 (0.345)	3,005 (0.500)
SG	0.136 (0.387)	0.182 (0.254)	0.193 (0.225)
SDA	-0.408 (0.004)		
LDA		0.126 (0.334)	
DA			-0.119 (0.217)
R ²	0.048	0.014	0.017
SE	39.9602	40.6598	40.6039
Prob (F)	0.014	0.381	0.301
Dependent variable: ROE			

Table 20 Regression results of during crisis for Portugal and Spain with ROA as dependent variables

Variables	Profitability		
	1	2	3
SIZE	0.033 (0.0954)	0.093 (0.875)	-0.145 (0.799)
SG	0.027 (0.192)	0.044 (0.036)	0.037 (0.064)
SDA	-0.080 (0.000)		
LDA		-0.037 (0.030)	
DA			-0.058 (0.000)
R ²	0.100	0.038	0.110
SE	5.1688	5.3416	5.1366
Prob (F)	0.000	0.000	0.000
Dependent variable: ROA			

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